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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/378,577	08/20/1999	WENYUAN SHI	60307-5001	9309

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EXAMINER

ZEMAN, ROBERT A

ART UNIT	PAPER NUMBER
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1645

DATE MAILED: 11/01/2002

28

Please find below and/or attached an Office communication concerning this application or proceeding.

Advisory Action

Application No.

09/378,577

Applicant(s)

SHI ET AL.

Examiner

Robert A. Zeman

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--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 04 October 2002 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

PERIOD FOR REPLY [check either a) or b)]

- a) ☐ The period for reply expires _____ months from the mailing date of the final rejection.
- b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection. ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on _____. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
2. ☐ The proposed amendment(s) will not be entered because:
- (a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);
 - (b) ☐ they raise the issue of new matter (see Note below);
 - (c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
 - (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: _____

3. ☒ Applicant's reply has overcome the following rejection(s): see attached.
4. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
5. ☒ The a) ☐ affidavit, b) ☐ exhibit, or c) ☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because: see attached.
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.
7. ☒ For purposes of Appeal, the proposed amendment(s) a) ☐ will not be entered or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: _____

Claim(s) objected to: _____

Claim(s) rejected: 1-4,6-10,12 and 17.

Claim(s) withdrawn from consideration: _____

8. ☐ The proposed drawing correction filed on _____ is a) ☐ approved or b) ☐ disapproved by the Examiner.
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
10. ☐ Other: _____

Patricia A. Duffy
PATRICIA A. DUFFY
PRIMARY EXAMINER

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ADVISORY ACTION

The amendment and response filed on 10-4-2002 is acknowledged and said amendment has been entered. Claims 3, 7 and 9 have been amended. Claims 1-4, 6-10, 12 and 17 are pending.

Claim Objections Withdrawn

The objection to claims 3 and 9 for minor informalities is withdrawn in light of the amendment thereto.

Claim Rejections Maintained

35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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Claim 1-4, 6-10, 12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ma et al. (European Journal of Immunology 1944, Vol. 24(1), pages 131-138) in view of Adair et al. (U.S. Patent 5,877,293) is maintained for reasons of record.

Applicant argues:

1. Ma et al. does not teach or suggest the present invention.
2. Ma et al. teaches away from using the method provided by the instant invention.
3. Ma et al. is directed **primarily** to expressing a murine IgG1 antibody, Guy's 13, in transgenic plants.
4. Guy's 13 prevents the adherence and colonization of *S. mutans in vivo*.
5. Ma et al. disclose that the Fc-mediated functions of the mAB were not essential, as the F(ab')₂ portion was as protective as the intact IgG and that while the maintenance of bivalent antigen binding was required for the prevention of colonization of *S. mutans in vivo*, the functional Ig regions that are involved in the complement binding and optimization through cellular interactions are not essential. This illustrates that epitope binding is critical to the protective function of Guy's 13 whereas the Fc-mediated functions are dispensable.
6. The Office states that Ma disclosed IgG based antibodies and these IgG based antibodies "by their very nature stimulate a humoral immune response regardless of the motivation behind its application".
7. An obviousness rejection has to rely on what is taught by the art, not what is inherent in the art.
8. Ma et al. does not teach or suggest the use of an antibody that functions through specific binding **and via eliciting a humoral response**.

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9. One of skill in the art would not believe that in order to treat or prevent dental caries, he or she should use antibodies that function via specifically binding to a cariogenic organism **and via eliciting a humoral response**.

10. Based on Ma's disclosure one of skill in the art would have used antibodies that have the same epitope specificity as Guy's 13 but would not have realized that using antibodies eliciting a humoral immune response could also provide a protective effect.

11. In order for an IgG antibody to trigger a humoral immune response, it has to be associated with the appropriate (same species) immune system. Hence, the antibodies disclosed by Ma et al. would not have induced a humoral response.

12. The disclosure of Adair et al. does cure the deficiency of Ma et al. since it does not teach or suggest using chimeric antibodies to treat dental caries, especially by eliciting a humoral immune response.

Applicant's arguments have been fully considered and deemed non-persuasive.

Applicant's arguments are predicated that Ma et al. do not specifically disclose the use of chimeric monoclonal that specifically bind a cariogenic organism **and elicit a humoral immune response** to treat or prevent dental caries. As outlined previously, Ma et al. disclose methods for the production of chimeric IgG based (as well as others) monoclonal antibodies against *Staphylococcus mutans* in tobacco plants to use in the treatment of dental caries in humans and other mammals (see page 131, second paragraph). Ma et al. differs from the claimed invention in that both the heavy and light chains of the chimeric monoclonal antibodies are derived from murine antibodies. However, Adair et al. disclose methods for the production of chimeric antibodies where the light chains are derived from murine antibodies and the heavy chains are

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derived from human antibodies. Consequently, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use the methods of Adair et al. to “humanize” the chimeric antibodies disclosed in the methods of Ma et al. in order to take advantage of the reduced antigenicity and increased therapeutic effectiveness of “humanized” chimeric antibodies. Contrary to Applicant’s assertion, one of skill in the art would recognize that the disclosure of Ma et al. teaches methods of using chimeric monoclonal antibodies to treat dental caries and would look to the disclosure of Adair et al. for methods of humanizing said antibodies.

With regard to Applicants assertion that Ma et al. teaches away from the instant invention since they disclose that the Fc-mediated functions of the mAB were not essential, as the F(ab’)₂ portion was as protective as protective as the intact IgG and that while the maintenance of bivalent antigen binding was required for the prevention of colonization of *S. mutans in vivo*, the functional Ig regions that are involved in the complement binding and optimization through cellular interactions are not essential. This illustrates that epitope binding is critical to the protective function of Guy’s 13 whereas the Fc-mediated functions are dispensable: Ma et al. disclose multiple forms of the Guy’s 13 antibody including Guy’s 13 IgG1 with the original gamma heavy chain (see page 132).

With regard to Applicant’s assertion that an obviousness rejection has to rely on what is taught by the art, not what is inherent in the art: Applicant is reminded that the express, implicit, and inherent disclosures of a prior art reference may be relied upon in the rejection of claims under 35 U.S.C. 102 or 103. “The inherent teaching of a prior art reference, a question of fact, arises both in the context of anticipation and obviousness.” *In re Napier*, 55 F.3d 610, 613, 34

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USPQ2d 1782, 1784 (Fed. Cir.1995) (affirmed a 35 U.S.C. 103 rejection based in part on inherent disclosure in one of the references). See also *In re Grasselli*, 713 F.2d 731, 739, 218 USPQ 769, 775 (Fed. Cir. 1983). Under the principles of inherency, if a prior art device, in its normal and usual operation, would necessarily perform the method claimed, then the method claimed will be considered to be anticipated by the prior art device. When the prior art device is the same as a device described in the specification for carrying out the claimed method, it can be assumed the device will inherently perform the claimed process. *In re King*, 801 F.2d 1324, 231 USPQ 136 (Fed. Cir. 1986). Additionally Applicant is reminded “the claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best* 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977).

Conclusion

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert A. Zeman whose telephone number is (703) 608-7991. The examiner can normally be reached on Monday- Thursday 7am -5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Lynette Smith can be reached on (703) 308-3909. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4242 for regular communications and (703) 308-4242 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

Robert A. Zeman
October 28, 2002